On one "contradiction" in the economic system of Karl Marx

Sholom Dvolaitsky

This is a translation of the following Russian article:

Dvolajtskij, Sholom 1922, 'Ob odnom “protivorechij” v ekonomicheskoj sisteme K. Marksa' ['On one “contradiction” in the economic system of Karl Marx'], *Pod znamenem marksizma* [*Under the Banner of Marxism*], 1, 7-8: 145–53.

This short article is first, an exposition, and second, a refutation of the '"transformation problem" of Ladislaus Bortkiewicz, dating from 1922. This is probably the earliest published Marxist response to Bortkiewicz (from the correspondence with his father Karl Kautsky, it is evident that at the time also Benedict Kautsky was dealing with Bortkiewicz's challenge). For a more recent interpretation of the so-called transformation problem, see the work of Valeriy Kalyuzhnyi.

I think the point of this text later has also been made in a footnote of a contribution (just remember the author's name sounded Spanish) in *Ricardo, Marx, Sraffa. The Langston Memorial Volume* (1985).

For information about this text's author, Sholom Dvolajtski, see here.[1]

1 See this web page: https://libcom.org/forums/theory/forgotten-great-theoreticians-02042010#comment-396429 Шолом Моисеевич Дволайцкий

***

1. Exposition[2]

To illustrate the transformation of values of commodities into prices of production, Marx gives the following two illustrative Tables:

Таблица I. Определение ценности товаров. **Table 1 Values**

	Постоянный капитал (c)	Переменный капитал (v)	Потребленн. постоянный капитал (ac)	Прибавочная ценность (m)	Ценность (W)	Норма прибыли $\left(\frac{m}{c+v}\right)$
I	80	20	50	20	90	20%
II	70	30	50 [1])	30	110	30%
III	60	40	52 [1])	40	132	40%
IV	85	15	40	15	70	15%
V	95	5	10	5	20	5%
I—V	390	110	202	110	422	22%

Table 2 Prices of production

Таблица II. Определение цен производства товаров.

	Постоян. капитал (c)	Перемен. капитал (v)	Потребл. постоянн. капитал (ac)	Издержки производства (ac + v)	Прибыль (m′)	Цена (P)	Отклонен. цены производства от ценности (P—W)	Норма прибыли $\left(\frac{m'}{c+v}\right)$
I	80	20	50	70	22	92	+ 2	22%
II	70	30	50 [1])	80	22	102	— 8	22%
III	60	40	52 [1])	92	22	114	—18	22%
IV	85	15	40	55	22	77	+ 7	22%
V	95	5	10	15	22	37	+17	22%
I—V	390	110	202	312	110	422	—	22%

Table 1. Determination of value of commodities.

Table 2. Determination of price of production of commodities.[3]

Each of these Tables operates with five groups of capitals, in which each has the same

2 I added these title-headings (1. the exposition, 2. the refutation) – translator's note.

3 Marx instead of 50 and 52 took in both cases 51 (ac, the used up constant capital, of sphere II and III). We take the table with the changes made by prof. L. Bortkiewicz, as they do not change the heart of the matter. See L. v. Bortkiewicz, 'Wertrechnung und Preisrechnung im Marxschen System', 2. Artikel. *Archiv fur Sozialwissenschaft und Sozialpolitik*, Neue Folge, XXV Band, 1. Heft, Tübingen 1907, p. 14.

organic composition. For capitals of I this latter (c: v) is 4: 1, for capitals of II 7: 3 and so on; the absolute magnitude of capitals is not taken into account. The first table gives the value of products of production of enterprises with the same organic composition of capital under the assumption, that the rate of surplus value in all cases = 100% and that the used up part of constant capital (the transferred to the commodity value entering into it of the circulating part of constant capital and used-up part of fixed capital) is different for I, II, III, IV, V. Under such conditions it is not difficult to calculate, for example, the value of the product of the production of enterprises, united in group III. The formula $ac + v + m$ give us, in this case 52 + 40 + 40 = 132. In the same way we get also the rest of the results, signified in our Table under the heading (*W*).

If we calculate the rate of profit for I-V individually, then in each case, we obtain, as can be seen from Table 1, different results, since $c + v = 100$, but m (equal to v) depends on the organic composition of the corresponding capital. But a capitalist society does not condone this kind of status quo. Competition and the migration of capitals do their thing, and as a result along the whole of society there is a tendency to establish a general rate of profit, independent of the organic composition of this or the other capital. According to Marx, the general rate of profit is determined, as is known, by the expression in percentage of the ratio of the total surplus value to the total social capital. Consequently, if the organic composition of the latter is given and furthermore the rate of exploitation, then by the same token, also is given the general rate of profit. The organic composition of all five groups of capitals, taken together and representing themselves the total social capital, is defined by the ratio $c = 390$ to $v = 110$; but once the rate of surplus value = 100%, then $m = v = 110$, and if so, then the searched for average rate of profit is

110/(390+110) = 22%.

"So far as profits are concerned, - Marx notes, - the various capitalists are just so many stockholders in a stock company in which the shares of profit are uniformly divided per 100, so that profits differ in the case of the individual capitalists only in accordance with the amount of capital invested by each in the aggregate enterprise, that is, according to his investment in social production as a whole, according to the number of his shares."[4]

Table 2 illustrates how the establishment of the general rate of profit leads to the formation of prices of production, differing from values. Here, in the calculation of the prices of production, for example, the product of III, to the cost of production ac + v = 52 + 40 = 92 is added already not the entire surplus value of 40 as in Table 1, but only 22. The result is

4 Marx 1981, *Capital* vol.III, part 1, Moscow 1907, p.134. https://www.marxists.org/archive/marx/works/1894-c3/ch09.htm

114, that is, 18 less: surplus value is like a common treasury of the whole class of capitalists and already then in the form of profit gets distributed among individual capitalists in proportion to their capital. But as the sole source of profit is surplus value, the first constructed by Marx theory of the average rate of profit must inevitably lead to the fact that if we add up separately all the without exclusion values of commodities and their prices of production, then the deviation of the first from the second, taking place for each commodity separately, gets mutually cancelled and as a result gives an equal sums.[5] So, in our Table + 2 - 8 - 18 + 7 + 17 = 0,

Wi + Wii + Wiii + Wiv + Wv = 90 + 111 + 132 + 70 + 20 = 422.
Pi + Pii + Piii + Piv + Pv = 92 + 102 + 114 + 77 + 37 = 422.

This is the viewpoint of Marx's economic theory. But against Marx came out the well known Mr Bortkiewicz, on the heels of whom followed Mr Otto Kühne.[6] Having undertaken mathematical criticism of Marx, they first encountered the "internal contradiction" of the above schemes. "There is nothing easier - writes Bortkiewicz - than to show that the procedure employed by Marx for the transformation of values into prices is erroneous" (meant are prices of production).[7] In fact, - he and his friend opponent say – let us suppose that Table 1 refers to simple reproduction. And in simple reproduction the value of commodities, manufactured by spheres producing means of consumption for workers, should be equal to the aggregate variable capital; the value of commodities from manufacturing spheres producing means of consumption for the capitalists, should coincide with the aggregate of their total profit; the value of commodities, made means of production, should be equal to the used up part of constant capital of the whole society. All this we know from volume II of *Capital*.[8] Let us suppose further that the "spheres of production" I and V manufacture articles of consumption of the capitalist class. This, according to our authors, is perfectly assumable, as the value of the commodities produced by these spheres 90 + 20 = 110, that is, the aggregate surplus values obtained by the capitalist class. Let us suposse by equal fashion the rightful assumption, that III and IV manufacture the means of production, because the value of the commodities manufactured by them (132 + 70) coincides exactly with the used up part of the social constant capital (202). Sphere II clearly produces the means of consumption for the working class, because

5 I leave out a lengthy footnote in the original text with the mathematical formulation, – translator's note.
6 Dr. Otto Kühne, Untersuchungen über die Wert- und Preisrechnung des Marx'schen Systems. Eine dogmen-kritische Auseinandersetzung mit L. v. Bortkiewicz, Greifswald 1922, pp.19 and following.
7 Bortkiewitcz, cit. work, p. 15.
8 Marx, *Capital*, vol.II, Moscow 1920.

the value of commodities manufactured by it 110 is equal of the sum of wages. In this way, in Table 1 all three conditions are met, under which is possible implementation in simple reproduction.

1) *m*i+ii+iii+iv+v = *W*i+v (means of cons. capitalists)
2) *v*i+ii+iii+iv+v = *W*ii (means of cons. workers) }(alpha)
3) *ac*i+ii+iii+iv+v = *W*iii +iv (means of cons. production)

Let us note that the same table, taken according to Marx (*Capital* vol. III, part1, Moscow, 1907, p. 134.), gives not such results, since Marx takes *ac*ii = *ac*iii = 51. Therefore his table gives, for example, the inequality

*v*i+ii+iii+iv+v < *W*ii or 110 < 111.

But as the change Bortkiewicz made, which as already noted (footnote 1) has nothing unjustified in itself - the magnitudes of used up part of constant capital are chosen quite arbitrarily also in Marx - we also continue to follow the exposition of his opponents, who precisely for objection also required to make in the schemes of Marx a change of numerical data.

But to what results do we come, if we put the system of equations (alpha), characterizing simple reproduction to Table 2, expressing the corresponding commodities in prices of production? It appears that

*m*i+ii+iii+iv+v < *P*i+v, or 110 < 129
*v*i+ii+iii+iv+v > *P*ii, or 110 > 102
*ac*i+ii+iii+iv+v > *P*iii+iv, or 202 > 191.

"We believe therefor, - writes Kühne, - that these results prove that the transformation of values in prices (of production), as Marx gives it, should decisively be rejected, precisely because it leads to unacceptable absurdities (unerträgliche Inkonzinnitäten)."

These are the conclusions of Bortkiewicz and Kühne.

2. Refutation

With a more or less careful analysis it is not difficult to see, that these conclusions, so unfavorable for Marx's economic theory, are entirely based on a "little" falsification. The fact is that Marx here understands by "production spheres" I, II, III etc. not certain

industrial branches, producing certain use-values, but groups of enterprises with the same organic composition of capital: this latter also is in the given case for Marx the *fundamentum divisionis*. And if this is so, then it is entirely obvious that every of our "spheres" can produce at the same time means of consumption of workers, and means of consumption of capitalists, and even elements of constant capital. When the Messrs critics fix in advance for certain "spheres" of production of commodities certain use-values, then such a priori assumption is justified alone really just by the artificially selected by them numerical data.

The only rightful question, that here could have been presented, reads: *which* of the "spheres" I - V or *which parts* of these "spheres" should engage in the production of consumer commodities of capitalists, *which* should produce the means of consumption of workers and *which* the means of production, *in order for* conditions of simple reproduction to be met both in the first, and in the second Tables? The answer to this question (and herewith not the only) can be obtained using a system of two equations with two unknowns. Let us assume that on the production of means of consumption of capitalists is spent a part of the Ist and a part of the IInd spheres. Let the corresponding part of I be x1, and the corresponding part of II - y1. In this case the value of means of consumption of capitalists, expended by the searched for parts of the Ist and the IInd sphere, on the basis of Table 1, constitutes 90x1 + 110y1; the price of production of these means of consumption, on the basis of Table 2 is determined through 92x1 + 102y1. And both these sums [see the first equation system (alpha)] must be equal to the total surplus value, or what is the same, total profit of the class of capitalists, that is, 110. We obtain thus a system of two equations with two unknowns

$$90x_1 + 110y_1 = 110$$

$$92x_1 + 102y_1 = 110$$

Solution of these equations gives $x_1 = 44/47$ and $y_1 = 11/47$. In other words, in the production of means of consumption of the capitalist class must expend 44/47 of sphere I and 11/47 of sphere II. Suppose further that on production of means of consumption for the workers is expended a part of sphere III, defined by x2, and a part of sphere IV, defined by y2.

Then we, as in the first case, we will have the system of equations:

$$132x_2 + 70y_2 = 110$$

$$114x_2 + 77y_2 = 110$$

Solving these equations, we obtain $x_2 = 55/156$ and $y_2 = 495/546$; that is, 55/156 of sphere

III and 495/546 of sphere IV is employed for the manufacture of consumer goods of workers. It is easy to see that the production of elements of constant capital employs 3/47 of sphere I, 36/47 of II, 101/156 of III, 51/546 of IV and the whole of V.

Checking our solution shows clearly that both Table 1 and 2 fully satisfy the conditions of simple reproduction:

44/47 . 90 + 11/47 .110 = 44/47 . 92 + 11/47 . 102 = 110
55/156. 132 + 495/546 . 70 = 55/47 . 114 + 549/546 . 77 = 110
3/47 . 90 + 36/47 . 110 + 101/156 . 132 + 51/456 . 70 + 20 = 202
3/47 . 92 + 36/47 . 102 + 101/156 . 114 + 51/456 . 77 + 37 = 202.

Splitting I in proportion 44:3, II in proportion 11:36, III in proportion 55:101 and IV in proportion 495:51, we instead of a sphere of production uniting only just the same organic composition of capital, obtain a *branch* of production manufacturing certain groups of use-values. It is entirely clear that by making this split of the relevant "spheres," we neither violate the organic composition of capital (c:v), nor the rate of surplus value (m/v), nor the rate of profit (m/c+v), because in all cases, we multiply the numerators and denominators of these fractional expressions by one and the same number. The same applies also to the used up part of constant capital (a). Making these estimates up to 0,001, we instead of Tables 1 and 2 get Tables 3 and 4:

Table 3

Таблица III.

		Постоянный капитал (c)	Переменный капитал (v)	Потребленн. постоянный капитал (ac)	Прибавочная ценность (m)	Ценность (W)	Норма прибыли $\left(\frac{m}{c+v}\right)$
I	A	74,894	18,723	46,808	18,723	84,255	20%
	B	5,106	1,277	3,192	1,277	5,745	
II	A	16,383	7,021	11,702	7,021	25,745	30%
	B	53,617	22,979	38,298	22,979	84,255	
III	A	21,154	14,103	18,333	14,103	46,539	40%
	B	38,846	25,897	33,667	25,897	85,461	
IV	A	77,060	13,599	36,264	13,599	63,461	15%
	B	7,940	1,401	3,736	1,401	6,339	
V		95,000	5,000	10,000	5,000	20,000	5%
I—V		390,000	110,000	202,000	110,000	422,000	22%

Table 4

Таблица IV.

		Постоян. капитал (c)	Перемен. капитал (v)	Потребл. постоян. капитал (ac)	Издержки производства (ac + v)	Прибыль (m′)	Цена производства (P)	Отклонен. цены производства от ценности (P—W)	Норма прибыли $\left(\frac{m'}{c+v}\right)$
I	A	74,894	18,723	46,809	65,532	20,596	86,128	+ 1,872	22%
	B	5,106	1,277	3,191	4,468	1,404	5,872	+ 0,128	22%
II	A	16,383	7,021	11,702	18,723	5,149	23,872	— 1,872	22%
	B	53,617	22,979	38,298	61,277	16,851	78,128	— 6,128	22%
III	A	21,154	14,103	18,333	32,436	7,692	40,192	— 6,346	22%
	B	38,846	25,897	33,667	59,564	14,308	73,808	—11,654	22%
IV	A	78,892	13,599	35,275	49,853	19,945	69,808	+ 6,376	22%
	B	6,108	1,401	4,725	5,147	2,055	7,192	+ 0,654	22%
V		95,000	5,000	10,000	15,000	22,000	37,000	+17,000	22%
I—V		390,000	110,000	202,000	312,000	110,000	422,000	0,000	22%

Digitized by Google Original from UNIVERSITY OF CALIFORNIA

I A and II A manufacture means of consumption of the capitalists, III A and IV A manufacture means of consumption for the workers, I B, II B, III B, IV B and V manufacture elements of constant capital.

The ratios of system (alpha) are met:

*m*i+ii+iii+iv+v = *W*iA+iiA, or 110 = 84,235 + 25,745

*v*i+ii+iii+iv+v = *W*iiiA+ivA, or 110 = 46,539 + 63,461
*ac*i+ii+iii+iv+v = *W*iB+iiB+iiiB+ivB+v, or 202 = 5,745 + 84,255 + 85,481 + 6,539 + 20, 000.

In the same way we get the transformed Table of prices of production. (see Table 4).

The application to this Table of criteria of simple reproduction leads us to the same results, as also in the analysis of Table 3. In fact:

*m'*i+ii+iii+iv+v = *P*iA+iiA, or 110 = 86,128 + 23, 872
*v*i+ii+iii+iv+v = *P*iiiA+ivA, or 110 = 40,132 + 69,868
*ac*i+ii+iii+iv+v = *P*iB+iiB+iiiB+ivB+v or 202 = 5, 872+ 78,128 + 73,808 + 7,192 + 37,000.

And if this is so, then between the schemes of volume III of *Capital* (calculation of prices of production) and the schemes of volume II (in conditions of simple reproduction) there is absolutely no contradiction.